REMARKS

In view of the following discussion, none of the claims now pending in the application are made obvious under the provisions of 35 U.S.C. §103. Various claims were amended to address various informalities. No new matter was amended. Thus, all of the claims are now in allowable form.

I. REJECTION OF CLAIMS 1-13 AND 15-21 UNDER 35 U.S.C. § 103

A. Claims 1, 4, 5, 8-11, 13, 15-18 and 21

The Examiner has rejected claims 1, 4, 5, 8-11, 13, 15-18 and 21 in the Office Action as being unpatentable under 35 U.S.C. § 103 over Wang et al. (U.S. Patent Publication No. 2001/0024964, published on September 27, 2001, hereinafter referred to as "Wang") in view of (EP 0740430, hereinafter referred to as "Ohashi"). The rejection is respectfully traversed.

Wang discloses transmission diversity. The base transceiver station can make a decision as to changing transmission diversity in response to the power control message sent by the mobile station. (See Wang, Abstract).

Ohashi discloses a diversity radio communication system where an antenna switch circuit switches the first and second antennas to connect them to the transmit/receive switch circuit. (See Ohashi, p. 6, ll. 1-8).

The Examiner's attention is directed to the fact that Wang and Ohashi, alone or in any combination, fails to describe or to suggest the novel concept of switching between said first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein said predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station, as positively claimed. Specifically, independent claims 1, 5, 8, and 13 positively recite:

> 1. A radio receiver comprising:
> first and second antennas connected to a radio frequency processing circuitry by a radio frequency switch; and

a radio frequency switch control in communication with the radio frequency switch, the radio frequency switch control for switching between the first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein the predefined schedule is scheduled by a base station, wherein the sequence of scheduled packet bursts comprises a first signal burst received via the first antenna and a second signal burst received via the second antenna, wherein the first signal burst and the second signal burst comprise identical packets of a common message. (Emphasis added).

5. A method of maintaining a controlled quality of service in a wireless communication system, comprising:

receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station, where the scheduled communications being formatted as multiple packet bursts;

enabling a first antenna to receive a first packet burst in accordance with the predefined schedule;

enabling a second antenna to receive a second packet burst in accordance with the predefined schedule, wherein the first packet burst and the second packet burst comprise identical packets of a common message;

recording the received bursts as soft information in a storage medium; and

combining the soft information from the first and second bursts into a single message. (Emphasis added).

8. A method of achieving a quality of service control in a wireless local area network communication system, comprising:

transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of the plurality of packet bursts comprise identical packets of a common message; and

receiving each of the packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule, where the predefined schedule is scheduled by a base station and is used to select one of the plurality of antennas for receiving each of the packet bursts. (Emphasis added).

13. A communication system for coupling a transmitter and a receiver adapted for receiving a first signal burst and a second signal burst by a first antenna and a second antenna respectively, and responding to the two signal bursts to communicate a single unified message at the receiver; wherein:

the first and second signal bursts are sequentially separated in time in accordance with a predefined schedule, wherein the predefined schedule is scheduled by a base station, wherein the first signal burst and the second signal burst comprise identical packets of a common message;

the first and second antennas are sequentially enabled in accordance with

the predefined schedule to communicate with a storage medium at the receiver; and

enabling a representation of the single unified message by responding to the first and second signal bursts. (Emphasis added).

In one embodiment of the disclosure, a method and system are for the reception of radio signals using a protocol assisted switched diversity antenna system. One aspect of the disclosure is that the antennas are switched in response to packet bursts or signal bursts that are scheduled or ordered by time intervals. Namely, the antennas are switched in accordance with a predefined schedule, wherein said predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station. Thus, the packet bursts are first scheduled and then sent to the receiver in accordance with that predefined schedule. Similarly, the switching of the antennas is also performed in accordance with the predefined schedule.

Furthermore, the independent claims recite the limitation where a series of two signal bursts carrying exactly the same information is sent in accordance with the predefined schedule. In other words, both signal bursts carrying the same information are **pre-scheduled to be sent with the same information**. (See e.g., Assignee's Specification, para. [0020]-[0021]).

The alleged combination (as taught by Wang) fails to render obvious claims 1, 5, 8 and 13 because the alleged combination fails to describe or suggest the novel concept of switching between said first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein said predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station. Wang discloses that an antenna is switched if a number of 1's received is greater than a threshold value B. (See Wang, para. [0025]). In other words, Wang

explicitly describes that the antenna is switched only if some threshold is exceeded.

In stark contrast, claims 1, 5, 8 and 13 recite that the switching of the antennas is in response to a predefined schedule of a sequence of scheduled packet bursts, wherein said predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station. That is, the predefined schedule is not determined by any condition or threshold, as taught by Wang. Notably, Wang explicitly states that if the threshold is not exceed that no switching will occur and the transmission will continue using the current antenna. (See *Id.*). Unlike Wang, claims 1, 5, 8 and 13 specify that switching will occur in a predefined schedule. In other words, unlike Wang, claims 1, 5, 8 and 13 do not leave open the possibility that switching will not occur.

Moreover, Ohashi fails to bridge the substantial gap left by Wang because Ohashi also fails to describe or suggest switching between said first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein said predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station. Notably, Ohashi suffers from the same deficiency as suffered by Wang. Ohashi discloses that the switching is based upon a condition such as a level of received data or detection of an error or that switching is based upon reception of a response. (See Ohashi, p. 2, ll. 20-24). In other words, Ohashi and Wang both leave open the possibility that switching will not occur. Thus, these methods are clearly not equivalent to switching antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein said predefined schedule is scheduled by a base station, or receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception

operational modes, wherein the predefined schedule is scheduled by the transmission station, as recited by claims 1, 5, 8 and 13.

Moreover, Ohashi teaches that the same transmitter and receiver receive the same data. In stark contrast, the independent claims recite that the predefined schedule of scheduled packet bursts are received by different antennas (i.e., via first antenna and via a second antenna). Therefore, independent claims 1, 5, 8 and 13 are clearly patentable and not rendered obvious by the combination of Wang and Ohashi.

Furthermore, dependent claims 4, 9, 10, 11, 15-18 and 21 depend from claims 1, 8 and 13, respectively, and recite additional limitations. As such, and for the exact same reason set forth above, claims 4, 9, 10, 11, 15-18 and 21 are also patentable and not rendered obvious by Wang and Ohashi.

B. Claims 2, 3 and 12

The Examiner has rejected claims 2, 3 and 12 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Wang and Ohashi in view of Aaronson, et al. (U.S. Patent No. 6,363,062, issued March 26, 2002, hereinafter referred to as "Aaronson"). The rejection is respectfully traversed.

The disclosures of Wang and Ohashi are discussed above. Aaronson discloses a communications protocol for packet data. A MAC layer schedules communication bursts taking into account factors such as propagation delay between the different nodes, queuing of data and synchronization of the time transmitting from multiple nodes. (See Aaronson, col. 3, ll. 22-30).

However, Aaronson fails to bridge the substantial gap left by Wang and Ohashi. Specifically, Aaronson also fails to disclose the novel concept of switching between said first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein said predefined schedule is scheduled by a base station or transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of said plurality of packet bursts comprise identical packets of a common message.

As stated above, the combination of Wang and Ohashi simply does not describe or suggest the novel concept of switching between said first and second antennas in

response to a predefined schedule of a sequence of scheduled packet bursts, wherein said predefined schedule is scheduled by a base station or transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of said plurality of packet bursts comprise identical packets of a common message. This deficiency is not bridged by Aaronson because Aaronson only discloses using MAC protocol to schedule packet data. (See Aaronson, col. 3, ll. 22-30).

Dependent claims 2, 3 and 12 depend from claims 1 and 8, respectively, and recite additional limitations. As such, and for the exact same reason set forth above, claims 2, 3 and 12 are also not made obvious by the teachings of Wang, Ohashi and Aaronson.

C. Claims 5 and 6

The Examiner has rejected claims 5 and 6 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Ohashi in view of Khayrallah (XP-000889044, hereinafter referred to as "Khayrallah"). The rejection is traversed.

Ohashi discloses a diversity radio communication system where an antenna switch circuit switches the first and second antennas to connect them to the transmit/receive switch circuit. (See Ohashi, p. 6, ll.1-8).

Khayrallah discloses an improved time-diversity method. The number of antennas is grouped based on the depth of the interleaver. Then the antennas are selected according to conventional selection diversity methods such as, to maximize signal strength or signal-to-noise ratio. (See Khayrallah, para. 2, ll.10-11). In another embodiment, the antennas can be cycled in a pre-determined pattern or at random. (See Khayrallah, para. 3, ll. 4-5).

However, Ohashi and Khayrallah (either singly or in any permissible combination) fail to describe or suggest the novel concept of receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein said predefined schedule is scheduled by the transmission station. Independent claim 5 positively recites:

5. A method of maintaining a controlled quality of service in a wireless communication system, comprising:

receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein the predefined schedule is scheduled by the transmission station, where the scheduled communications being formatted as multiple packet bursts;

enabling a first antenna to receive a first packet burst in accordance with the predefined schedule;

enabling a second antenna to receive a second packet burst in accordance with the predefined schedule, wherein the first packet burst and the second packet burst comprise identical packets of a common message;

recording the received bursts as soft information in a storage medium; and

combining the soft information from the first and second bursts into a single message. (Emphasis added).

In arguendo, even if Ohashi and Khayrallah were combined, the combination would still not teach or suggest all of the limitations of claim 5. Specifically, the combination of Ohashi and Khayrallah fails to describe receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein said predefined schedule is scheduled by the transmission station. As discussed above, Ohashi discloses that the switching is based upon a condition such as a level of received data or detection of an error or that switching is based upon reception of a response. (See Ohashi, p. 2, ll. 20-24). In other words, Ohashi leaves open the possibility that switching will not occur.

Said another way, Ohashi only discloses that the same message is re-transmitted in response to an error. (See Ohashi, p. 10, l. 57 – p. 11, l. 2). Therefore, the re-submission by Ohashi is not performed in accordance with a predefined schedule, wherein said predefined schedule is scheduled by the transmission station. Ohashi cannot pre-schedule as to when an error will occur.

Moreover, Ohashi teaches that the same transmitter and receiver receive the same data. In stark contrast, independent claim 5 recites that the predefined schedule of scheduled packet bursts are received by different antennas (i.e., via first antenna and via a second antenna).

Khayrallah fails to bridge the substantial gap left by Ohashi because Khayrallah also fails to describe or suggest novel concept of receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein said predefined schedule is scheduled by the transmission station. Khayrallah only discloses that the antennas are selected according to conventional selection diversity methods such as, to maximize signal strength or signal-to-noise ratio. (See Khayrallah, para. 2, ll.10-11). Therefore, the combination of Ohashi and Khayrallah fails to render obvious independent claim 5.

Therefore, independent claim 5 is clearly patentable and not made obvious by Ohashi and Khayrallah. Furthermore, dependent claim 6 depends from claim 5 and recites additional limitations. As such, and for the exact same reason set forth above, claim 6 is also not made obvious by the teachings of Ohashi and Khayrallah.

D. Claim 7

The Examiner rejected claim 7 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Ohashi in view of Khayrallah, and further in view of Suzuki (U.S. Patent No. 5,787,122, issued July 28, 1998, hereinafter referred to as "Suzuki"). The rejection is traversed.

The disclosures of Ohashi and Khayrallah re discussed above. Suzuki teaches a method and apparatus for transmitting and receiving encoded data as burst signals using a number of antennas. Specifically, Suzuki teaches a reception system that sends a reception signal encoded and dispersed into a plurality of symbols. (See Suzuki, col. 9, ll. 2-6). The reception signal is then received by a plurality of antennas. (See Suzuki, col. 9, ll. 7-12). Each time the antenna switcher receives burst data, the antenna switcher switches the antenna under control of the communication control unit. The antennas may be selected in the previously determined sequential order or may be randomly selected based on data generated at random. (See Suzuki, col. 9, ll. 13-26). Then the reception signal obtained is demodulated, deinterleaved and reconverted into the original data. (See Suzuki, col. 9, ll. 27-33).

However, the combination of Ohashi, Khayrallah and Suzuki fails to describe or

suggest the novel concept of receiving scheduled communications from a transceiver at a transmission station in accordance with a predefined schedule by wireless transceivers at receiving stations having switched protocol diversity reception operational modes, wherein said predefined schedule is scheduled by the transmission station. Therefore, the combination of Ohashi, Khayrallah and Suzuki fails to render obvious independent claim 5.

Dependent claim 7 depends from claim 5 and recites additional limitations. As such, and for the exact same reason set forth above, claim 7 is also not made obvious by the teachings of Ohashi, Khayrallah and Suzuki.

E. Claims 19 and 20

The Examiner has rejected claims 19 and 20 in the Office Action under 35 U.S.C. § 103 as being unpatentable over Wang and Ohashi in view of Sampath et al. (U.S. Patent Publication No. 2003/0012308, published January 16, 2003, hereinafter referred to as "Sampath"). The rejection is traversed.

The disclosures of Wang and Ohashi are discussed above. Sampath discloses a method of adaptive channel estimation for wireless systems. Further, Sampath discloses that signals can be sent with training symbols embedded in data symbols. (See Sampath, Abstract).

However, Sampath fails to bridge the substantial gap left by Wang and Ohashi. Specifically, Sampath also fails to disclose the novel concept of switching between said first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein said predefined schedule is scheduled by a base station, transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of said plurality of packet bursts comprise identical packets of a common message and receiving each of the packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule.

As stated above, the combination of Wang and Ohashi simply does not teach or suggest the novel concept of switching between said first and second antennas in response to a predefined schedule of a sequence of scheduled packet bursts, wherein

said predefined schedule is scheduled by a base station, transmitting a message contained within a plurality of packet bursts occurring at spaced time intervals, wherein a first packet burst and a second packet burst of said plurality of packet bursts comprise identical packets of a common message and receiving each of the packet bursts individually at one of a plurality of antennas in accordance with a predefined schedule. This deficiency is not bridged by Sampath because Sampath only discloses a method of adaptive channel estimation for wireless systems that include the ability to embed training symbols in data symbols. Therefore, the combination of Wang, Ohashi and Sampath fails to render obvious independent claim 8.

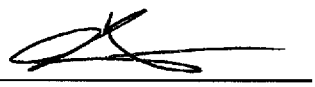
Dependent claims 19 and 20 depend from claim 8 and recite additional limitations. As such, and for the exact same reason set forth above, claims 19 and 20 are also not made obvious by the teachings of Wang, Ohashi and Sampath.

Conclusion

Thus, all of the claims now fully satisfy the requirements of 35 U.S.C. §103. Consequently, all the claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues in any of the claims now pending in the application, it is requested that the Examiner telephone Mr. Kin-Wah Tong, Esq. at (732) 842-8110 x130 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,



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